METHODS AND SYSTEMS FOR SENSING AND COMPENSATING FOR PROCESS, VOLTAGE, TEMPERATURE, AND LOAD VARIATIONS

ABSTRACT

Methods and systems for maintaining desired circuit and/or signal characteristics, such as impedance matching characteristics and rise and fall time characteristics, over a range of PVT variations. In an embodiment, a PVT compensating circuit senses one or more circuit and/or signal characteristics at an output pad or terminal. When the one or more circuit and/or signal characteristics are affected by PVT variations in the IC and/or load, the PVT compensating circuit controls a variable output drive to maintain the one or more circuit and/or signal characteristics within a desired or predetermined range. The PVT compensating circuit is designed to compensate over a range of PVT variations. In an embodiment, the PVT compensating circuit senses a rate of voltage change over time (i.e., dV/dt), of an output signal at the output terminal. During state transitions of the output signal, the output signal is adjusted as needed to maintain a desired, or pre-determined, rate of voltage change. The invention further provides impedance matching characteristics.

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